Manual

INSYS icom

Industrial Data Communication

INSYS HSPA small 2.0

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Date: Nov-11
Item: 31-22-03.168
Version: 1.1
Language:

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1 Preface

This manual allows for the safe and efficient use of the product. The manual is part of the product and must always be stored accessible for installation, commissioning and operating personnel.

1.1 Defects Liability Terms

A usage not according to the intended purpose, an ignorance of this documentation, the use of insufficiently qualified personnel as well as unauthorised modifications exclude the liability of the manufacturer for damages resulting from this. The liability of the manufacturer ceases to exist.

The regulations of our Delivery and Purchasing Conditions are effective. These can be found on our website (www.insys-icom.de/imprint/) under “General Terms and Conditions“.

1.2 Marking of Warnings and Notes

1.2.1 Symbols and Key Words

Danger!

Risk of severe or fatal injury

One of these symbols in conjunction with the key word Danger indicates an imminent danger. It will cause death or severe injuries if not avoided.

Warning!

Personal injury

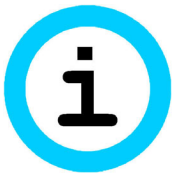
This symbol in conjunction with the key word Warning indicates a possibly hazardous situation. It might cause death or severe injuries if not avoided.

Caution!

Slight injury and / or material damage

This symbol in conjunction with the key word Caution indicates a possibly hazardous or harmful situation. It might cause slight or minor injuries or a damage of the product or something in its vicinity if not avoided.

Note



Improvement of the application

This symbol in conjunction with the key word Note indicates hints for the user or very useful information. This information helps with installation, set-up and operation of the product to ensure a fault-free operation.

1.3 Symbols and the Formatting in this Manual

This section describes the definition, formatting and symbols used in this manual. The various symbols are meant to help you read and find the information relevant to you. The following text is structured like a typical operating instruction of this manual.

Bold print: This will tell you what the following steps will result in

After that, there will be a detailed explanation why you could perform the following steps to be able to reach the objective indicated first. You can decide whether the section is relevant for you or not.

⇢ An arrow will indicate prerequisites which must be fulfilled to be able to process the subsequent steps in a meaningful way. You will also learn which software or which equipment you will need.

1. One individual action step: This tells you what you need to do at this point. The steps are numbered for better orientation.

✓ A result which you will receive after performing a step will be marked with a check mark. At this point, you can check if the previous steps were successful.

ⓘ Additional information which you should consider are marked with a circled "i". At this point, we will indicate possible error sources and tell you how to avoid them.

➢ *Alternative results and steps are marked with an arrow. This will tell you how to reach the same results performing different steps, or what you could do if you didn't reach the expected results at this point.*

2 Safety

The Safety section provides an overview about the safety instructions, which must be observed for the operation of the product.

The product is constructed according to the currently valid state-of-the-art technology and reliable in operation. It has been checked and left the factory in flawless condition concerning safety. In order to maintain this condition during the service life, the instructions of the valid publications and certificates must be observed and followed.

It is necessary to adhere to the general safety instructions must when operating the product. The descriptions of processes and operation procedures are provided with precise safety instructions in the respective sections in addition to the general safety instructions.

Moreover, the local accident prevention regulations and general safety regulations for the operating conditions of the device are effective.

An optimum protection of the personnel and the environment from hazards as well as a safe and fault-free operation of the product is only possible if all safety instructions are observed.

2.1 Usage According to the Regulations

The product may only be used for the purposes specified in the function overview. In addition, it may be used for the following purposes:

- Usage and mounting in an industrial cabinet.
- Data transmission functions in machines according to the machine directive 2006/42/EC.
- Usage as data transmission device for a PLC.

The product may not be used for the following purposes and used or operated under the following conditions:

- Controlling or switching of machines and systems, which do not comply with the directive 2006/42/EC.
- Usage, controlling, switching and data transmission of machines and systems, which are operated in explosive atmospheres.
- Controlling, switching and data transmission of machines, which may involve risks to life and limb due to their functions or when a breakdown occurs.

2.2 Permissible Technical Limits

The product is only intended for the use within the permissible technical limits specified in the data sheets.

The following permissible limits must be observed:

- The ambient temperature limits must not be fallen below or exceeded.
- The supply voltage range must not be fallen below or exceeded.
- The maximum humidity must not be exceeded and condensate formation must be prevented.
- The maximum switching voltage and the maximum switching current load must not be exceeded.
- The maximum input voltage and the maximum input current must not be exceeded.

2.3 Responsibilities of the Operator

As a matter of principle, the operator must observe the legal regulations, which are valid in his country, concerning operation, functional test, repair and maintenance of electrical devices.

2.4 Qualification of the Personnel

The installation, commissioning and maintenance of the product must only be performed by trained expert personnel, which has been authorised by the plant operator. The expert personnel must have read and understood this documentation and observe the instructions.

Electrical connection and commissioning must only be performed by a person, who is able to work on electrical installations and identify and avoid possible hazards independently, based on professional training, knowledge and experience as well as knowledge of the relevant standards and regulations.

2.5 Instructions for Transport and Storage

The following instructions must be observed:

- Do not expose the product to moisture and other potential hazardous environmental conditions (radiation, gases, etc.) during transport and storage. Pack product accordingly.
- Pack product sufficiently to protect it against shocks during transport and storage, e.g. using air-cushioned packing material.

Check product for possible damages, which might have been caused by improper transport, before installation. Transport damages must be noted down to the shipping documents. All claims or damages must be filed immediately and before installation against the carrier or party responsible for the storage.

2.6 Markings on the Product

The identification plate of the product is either a print or a label on a face of the product. Amongst other things, it contains the following markings, which are explained in detail here.

Observe manual

This symbol indicates that the manual of the product contains essential safety instructions that must be followed implicitly.

Dispose waste electronic equipment environmentally

This symbol indicates that waste electronic equipment must be disposed separately from residual waste via appropriate collecting points. See also Section Disposal in this manual.

CE marking

By applying a CE marking, the manufacturer confirms that the product complies with the European directives that apply product-specific.

Appliance Class II – double insulated

This symbol indicates that the product complies with Appliance Class II

2.7 Environmental Protection

Dispose the product and the packaging according to the relevant environmental protection regulations. The Waste Disposal section in this manual contains notes about disposing the product. Separate the packaging components of cardboard and paper as well as plastic and deliver them to the respective collection systems for recycling.

2.8 Safety Instructions for Electrical Installation

The electrical connection must only be made by authorised expert personnel according to the wiring diagrams.

The notes to the electrical connection in the manual must be observed. Otherwise, the protection category might be affected.

The safe disconnection of circuits, which are hazardous when touched, is only ensured if the connected devices meet the requirements of VDE T.101 (Basic requirements for safe disconnection).

The supply lines are to be routed apart from circuits, which are hazardous when touched, or isolated additionally for a safe disconnection.

2.9 General Safety Instructions

Caution!

Moisture and liquids from the environment may seep into the interior of the product!

Fire hazard and damage of the product.

The product must not be used in wet or damp environments, or in the direct vicinity of water. Install the product at a dry location, protected from water spray. Disconnect the power supply before you perform any work on a device which may have been in contact with moisture.

Caution!

Short circuits and damage due to improper repairs and modifications as well as opening of maintenance areas.

Fire hazard and damage of the product.

It is not permitted to open the product for repair or modification.

Caution!

Overcurrent of the device supply!

Fire hazard and damage of the product due to overcurrent.

The product must be secured with a suitable fuse against currents exceeding 1.6 A.

Caution!

Overvoltage and voltage peaks from the mains supply!

Fire hazard and damage of the product due to overvoltage.

Install suitable overvoltage protection.

Caution!

Damage due to chemicals!

Ketones and chlorinated hydrocarbons dissolve the plastic housing and damage the surface of the device.

Never let the device come into contact with ketones (e.g. acetone) or chlorinated hydrocarbons, such as dichloromethane.

Caution!

Distance from antennas to persons!

A too low distance from GSM antennas to persons can affect the health.

Please observe to keep a minimum distance of 20 cm between the GSM antenna and persons during operation.

3 Scope of Delivery

The scope of delivery for the INSYS HSPA small 2.0 includes all accessories listed below. Please check if all accessories are included in the box. If a part is missing or damaged, please contact your distributor.

- INSYS HSPA small 2.0
- Cable
  - USB cable to connect to the PC
- CD ROM
  - User Manual INSYS HSPA small 2.0 (PDF)
  - Add-on manual INSYS GPRS/EDGE Devices as GPRS/EDGE Terminal (PDF)
  - Configuration software HSComm

Optional accessories

- GSM antenna
  - Outside wall antenna, magnetic base antenna or patch antenna

4 Technical Data

4.1 Physical Features

All specified data was measured with nominal input voltage, at full load, and an ambient temperature of 25 °C. The limit value tolerances are subject to the usual variations.

Physical Feature	Value
Operating voltage	10 - 48 V DC ±5%
Power consumption standby	max. approx. 500 mW
Power consumption connection	max. approx. 3.5 W
Minimum SIM card operating voltage	1.8 or 3.3 V
Level inputs	HIGH level = 3.3-12 V (contact open or voltage strength for external supply) LOW level = 0-0.7 V
Current consumption of an active input against GND (internal 3.3 V)	Maximum 0.9 mA (when enabling the input by connecting to GND)
Switch output, maximum switch voltage	30 V (DC) / 42 V (AC)
Switch output, maximum current load	1 A (DC) / 0.5 A (AC)
Transmitted output: UMTS/HSPA: Class 3 GSM 900: Class 4 GSM 1800: Class 1 EDGE 900: Class E2 EDGE 1800: Class E2	 0.25 W 2 W 1 W 0.5 W 0.4 W
Weight	125 g
Dimensions (Width x Depth x Height)	23 x 120 x 75 mm
Temperature range	-20 °C – 55 °C
Maximum permissible humidity	95% non-condensing
Protection class	Housing IP40, Terminals IP20

Table 1: Physical Features

4.2 Technological Features

Technological Feature	Description
Data formats of the serial interface	8N1, 7E1, 7O1, 7N2, 8E1, 8O1, 8N2
Fax class	Fax group 3 Class 1
SMS features	Text and PDU mode - Mobile Originated (MO) - Mobile Terminated (MT) - Cell Broadcast (CB)
Quad band GSM frequencies	850, 900, 1800, 1900 MHz
UMTS/HSPA frequency	2100 MHz
CSD	GSM: up to 14.4 kbps
GPRS features	Multislot class 12 Coding Scheme CS1 to CS4 GPRS terminal device class B (no simultaneous CSD and GPRS connect possible)
EDGE features	Multislot class 12 Coding Scheme MCS1 to MCS9
HSPA features	Max. uplink 5.76 Mbps Max. downlink 7.2 Mbps UE CAT (1-8), 11, 12 supported Compressed mode (3GPP TS25.212)
USB interface	USB 2.0
Modulation types	V.22bis, V.32 (4800/9600 bps), V.34, V.110 (4800/9600/14400 bps)
Serial interface speed	300, 600, 1220, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200 bps

Table 2: Technological Features

ⓘ Above information is subject to the support by the provider.

5 Display and Control Elements

5.1 Display Elements

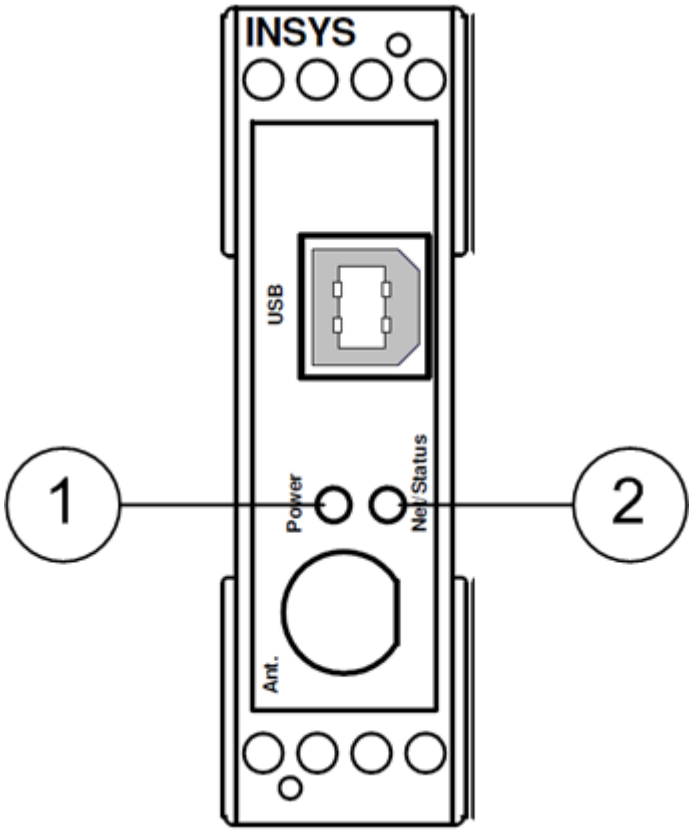


Figure 1: LEDs on the front panel

Position	Description
1	Power LED
2	Net/Status LED

Table 3: Description of the LEDs on the front panel

The left LED (Power) indicates the status of the power supply. The right LED (Net/Status) indicates a sending activity into the GSM/UMTS network. The exact meaning of the display elements is shown in the following table.

LED	Colour	On	Blinking:	Flashing:	Off
Power	**green**	Power supply is present	- - -	- - -	Power supply is not pre-sent
	orange	Initialisation (following start or reset)	- - -	- - -	
	red	- - -	- - -	- - -	
Net/ Status	**green**	- - -	- - -	Sending activity into the GSM/UMTS network	Power supply is not pre-sent
	orange	- - -	- - -	- - -	
	red	Initialisation (following start or reset)			

Table 4: Meaning of the LED displays

5.2 Control Elements

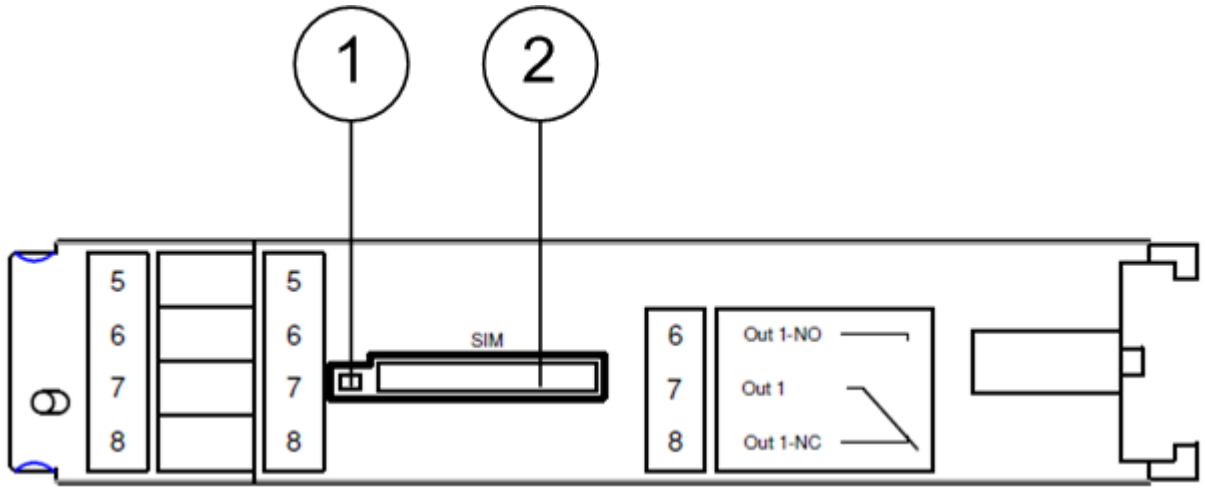


Figure 2: Control elements on the bottom of the device

Position	Description
1	SIM card holder eject key
2	SIM card holder insert

Table 5: Description of the control elements on the bottom of the device

6 Connections

6.1 Front Panel Connections

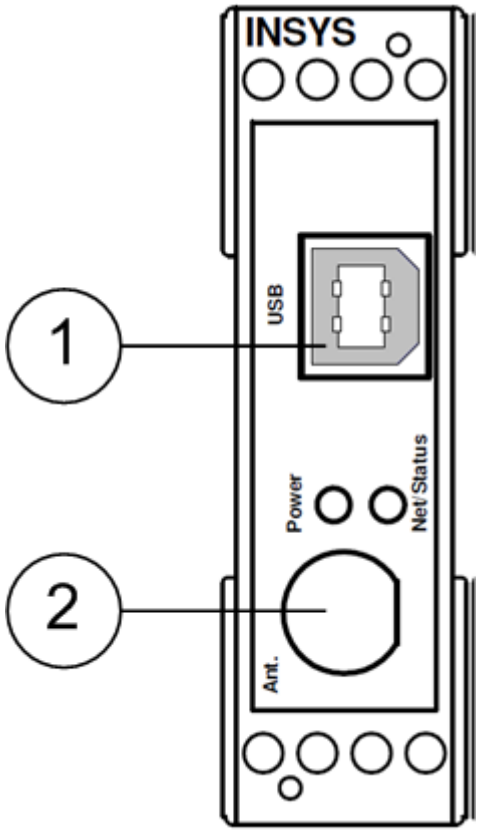


Figure 3: Connections on the front panel of the device

Position	Description
1	USB interface
2	Antenna connection (FME socket)

Table 6: Description of the connections on the front panel of the device

6.2 Terminal Connections on the Top

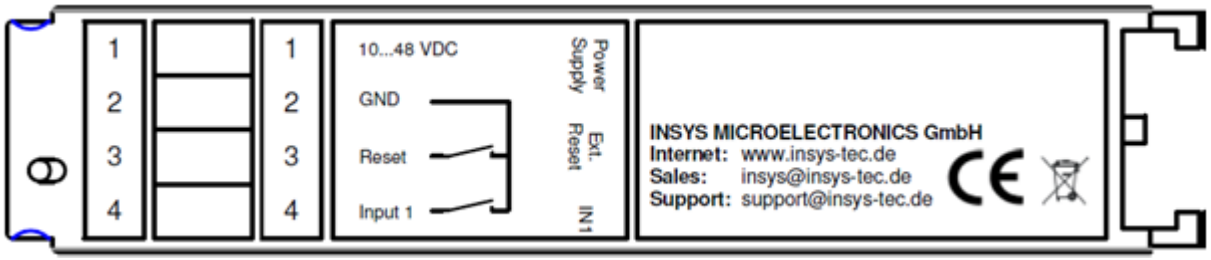


Figure 4: Connections on the top of the device

Terminal	Description	Description
1	10..48 VDC	Power supply 10V - 48V DC (voltage figures are limit values without tolerances)
2	GND	Ground
3	Reset	Reset input
4	Input 1	Digital input 1

Table 7: Description of the connections on the top of the device

6.3 Terminal Connections on the Bottom

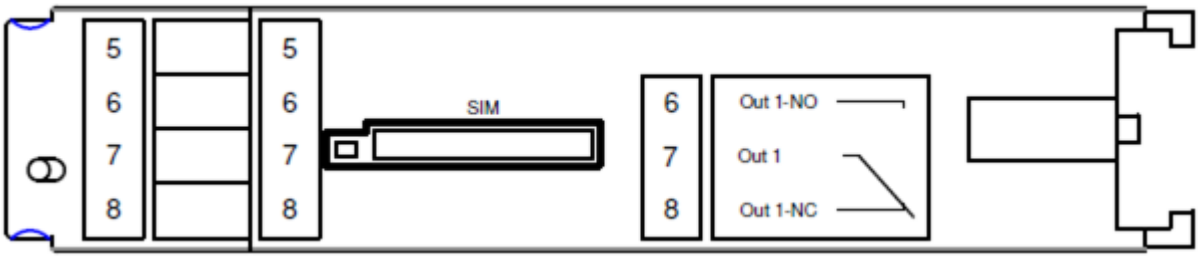


Figure 5: Connections on the bottom of the device

Terminal	Description	Description
5	-	Not connected
6	Out 1-NO	Switch output 1 - normally open
7	Out 1	Switch output 1 - common contact
8	Out 1-NC	Switch output 1 - normally closed

Table 8: Description of the connections on the bottom of the device

7 Function Overview

The INSYS HSPA small 2.0 provides you with the following functions:

- **Data buffering for serial data transmission**

  The INSYS HSPA small 2.0 provides rapid send and receive buffers to adjust the modem to the data processing speed of the application.

- **Bit direct mode**

  The INSYS HSPA small 2.0 can forward incoming data without having any influence on their transmission format.

- **Calling number identification**

  The INSYS HSPA small 2.0 transmits the phone number of an incoming call via the AT interface.

- **Automatic call acceptance for CSD data connections**

  The INSYS HSPA small 2.0 can be configured to accept incoming CSD data connections after a specified number of ring tones.

- **Automatic establishment of CSD data connections via the DTR control line**

  The INSYS HSPA small 2.0 can establish a CSD data connection to a configured number by activating the DTR control line.

- **Sending SMS messages on DTR activation**

  The INSYS HSPA small 2.0 can send a previously entered message to a configured recipient by activating the DTR control line.

- **Switch output**

  The INSYS HSPA small 2.0 has one switch output, which can be used to switch other functions in an application via AT commands.

- **Digital input**

  The INSYS HSPA small 2.0 has one digital input, which can be queried using an AT command.

- **Reset input**

  The INSYS HSPA small 2.0 can be reset by connecting the Reset input to ground. All saved settings are maintained with this.

- **Integrated real-time clock**

  The integrated real-time clock can be set and queried by the application.

- **HSPA functions**

  The INSYS HSPA small 2.0 provides the possibility to establish packet-switched IP connections via HSPA in addition.

8 Mounting

This section describes how to mount the INSYS HSPA small 2.0 to a DIN rail, connect the power supply and uninstall it again. Observe the instructions in the "Safety" section of this manual, in particular the "Safety Instructions for Electrical Installation" for that purpose unconditionally.

Caution!

Moisture and liquids from the environment may seep into the interior of the INSYS HSPA small 2.0!

Fire hazard and damage of the product.

The INSYS HSPA small 2.0 must not be used in wet or damp environments, or in the direct vicinity of water. Install the INSYS HSPA small 2.0 at a dry location, protected from water spray. Disconnect the power supply before you perform any work on a INSYS HSPA small 2.0 which may have been in contact with moisture.

Caution!

The device could be destroyed if the wrong power supply is used!

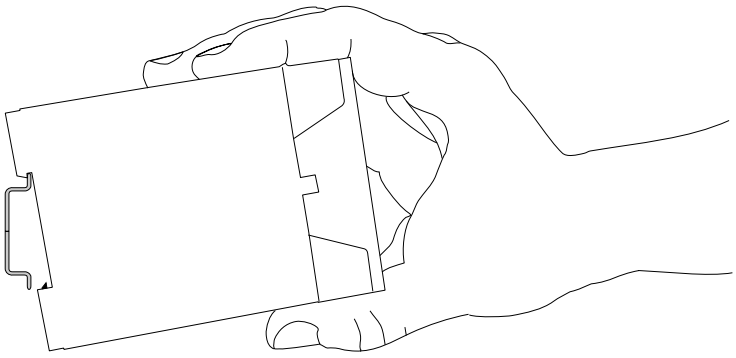
If the INSYS HSPA small 2.0 is operated with a power supply that supplies a voltage exceeding the permissible operating voltage of the INSYS HSPA small 2.0, the device will be destroyed.

Make sure that you use the suitable power supply. Refer to the Technical Data section for the proper voltage range of the INSYS HSPA small 2.0.

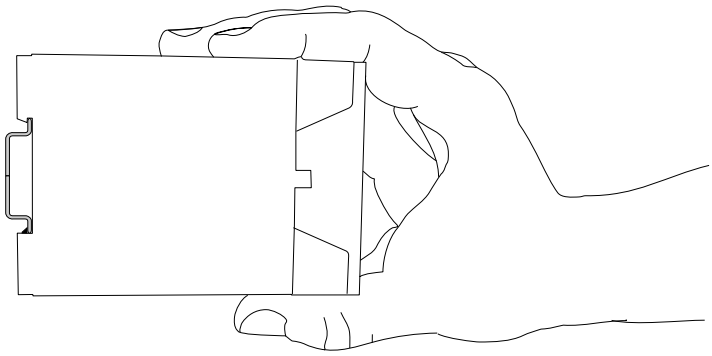
Mounting the device to the DIN rail

How to mount the INSYS HSPA small 2.0 to a DIN rail:

1. ***Position the device at the DIN rail as seen in the following diagram. There are two snap-in hooks at the upper and lower edge of the DIN rail groove of INSYS HSPA small 2.0. Hook the upper one into place behind the upper edge of the DIN rail.***



2. ***Lift the INSYS HSPA small 2.0 perpendicular to the DIN rail until the two lower, flexible snap-in hooks engage in the DIN rail.***



✓ The INSYS HSPA small 2.0 is now readily mounted.

Connecting the power supply

⇢ The device has already been mounted to the DIN rail.

⇢ The power supply is connected and switched off.

1. ***Connect the ground lead of the power supply to the terminal "GND".***

2. ***Connect the plus pole of the power supply to the terminal for the power supply.***

✓ The INSYS HSPA small 2.0 is now connected to the power supply.

Disconnecting the power supply

⇢ The device is mounted to the DIN rail.

⇢ The power supply is connected and switched off.

1. Disconnect the ground lead of the power supply from the terminal "GND".

2. Disconnect the plus pole of the power supply from the terminal for the power supply.

✓ The INSYS HSPA small 2.0 is disconnected from the power supply.

Uninstalling the device from the DIN rail

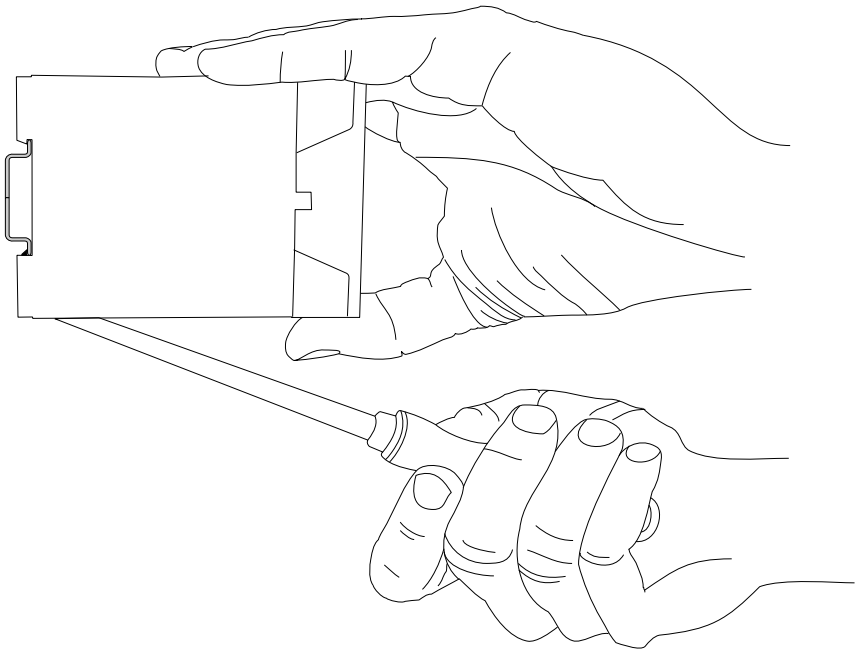
How to uninstall the INSYS HSPA small 2.0 from a DIN rail in a switch cabinet:

⇢ You will need a Phillips screwdriver with a 4.5 mm blade.

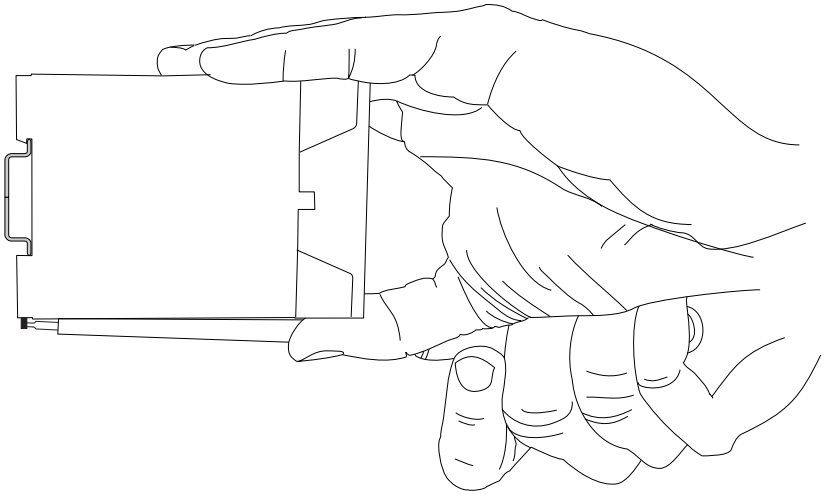
⇢ The power supply of the switch cabinet is switched off and secured against being switched on accidentally.

⇢ All cables at the INSYS HSPA small 2.0 are disconnected.

1. Insert the Philips screwdriver into the groove in the bottom of the INSYS HSPA small 2.0 as shown in the following figure.



2. Turn the Philips screwdriver into the direction of the INSYS HSPA small 2.0 as shown in the following figure.



✓ The plastic spring of the snap-in hook is stretched.

3. While you hold the plastic spring apart with the lower snap-in hooks, pull the INSYS HSPA small 2.0 away from the DIN rail.

4. Un-hook the INSYS HSPA small 2.0 and take it off perpendicularly to the DIN rail.

✓ The INSYS HSPA small 2.0 is now removed.

9 Initial Operation

This chapter describes how to put the INSYS HSPA small 2.0 in operation, i.e. how to install drivers on a (Windows) PC, connect the INSYS HSPA small 2.0 to a PC, register with a mobile network, and test it.

The driver file as well as further useful informationen (like for installing Linux drivers for example) can be found on the website of the mobile radio engine manufacturer under http://developer.motorola.com/products/wirelessmodules/h24/, under http://www.insys-icom.com/driver/, or directly from the INSYS icom support department (support@insys-tec.de).

Installing drivers on the PC

How to install the drivers for the INSYS HSPA small 2.0 on a Windows PC.

⇢ You will need the file with the Windows drivers (h24_drivers_installer.msi).

ⓘ Install the drivers on your PC before connecting the INSYS HSPA small 2.0 for the first time.

2. Open the file "h24_drivers_installer.msi" on your PC.

3. Follow the instructions of the installation wizard until the installation is completed.

✓ With this, the drivers are installed on your PC and the installation will be continued when the INSYS HSPA small 2.0 is connected for the first time.

Connecting the INSYS HSPA small 2.0 to a PC

How to connect the INSYS HSPA small 2.0 to a PC via the USB interface.

⇢ You will need the USB cable.

⇢ You will need a free USB interface at the PC.

⇢ The required drivers are installed on your PC.

1. Connect the USB cable with the INSYS HSPA small 2.0.

2. Connect the Ethernet cable to a free network interface of your PC.

✓ The INSYS HSPA small 2.0 is connected to the PC with this.

ⓘ The driver installation will be continued when the INSYS HSPA small 2.0 is connected for the first time. Follow the following steps for this.

✓ The PC detects new hardware components and opens an installation wizard.

3. Follow the instructions of the installation wizard to install the drivers.

4. Repeat this step until all (three) drivers are installed.

✓ You have installed the following drivers on you PC with this:
Motorola USB Composite Device
Motorola USB Modem
Motorola AT COM Port

Inserting a SIM card into the INSYS HSPA small 2.0

⇢ You will need a SIM card

ⓘ Please observe the notes in the Enter PIN of the SIM Card section of the Functions chapter concerning the PIN entry before inserting the SIM card to avoid an unintentional locking of the SIM card.

1. Insert the SIM card into the INSYS HSPA small 2.0 and proceed as described in the Insert and Remove SIM Card section of the Functions chapter.

✓ You have inserted the SIM card into the INSYS HSPA small 2.0 with this.

Connecting a GSM antenna to the INSYS HSPA small 2.0

⇢ You will need a suitable GSM antenna

1. Connect the GSM antenna with the FME connection on the front of the INSYS HSPA small 2.0.

✓ You have connected the GSM antenna to the INSYS HSPA small 2.0 with this.

Testing the INSYS HSPA small 2.0

⇢ The INSYS HSPA small 2.0 is connected to the PC.

⇢ The power supply of the INSYS HSPA small 2.0 is switched on (refer to the Installation section for the connection of the power supply).

⇢ A GSM antenna is connected to the INSYS HSPA small 2.0.

⇢ A terminal program (e.g. TeraTerm) is installed on the PC.

✓ The Power LED light up green.

1. ***Open your terminal program.***

2. ***Open the serial interface (COM port), to which the driver "Motorola AT COM Port" is connected.***

ⓘ You can find out this COM port by expanding the "Ports (COM & LPT)" entry in the Windows Device Manager.

3. ***Enter** AT **into your terminal program and confirm with the Enter key.***

✓ The response will be **OK**.

✓ The INSYS HSPA small 2.0 is installed successfully and ready for configuration.

➢ *If you don't receive the response **OK**, check the connection, the configured COM port, and if the INSYS HSPA small 2.0 receives power. Repeat the test.*

10 Operating Principle

This section describes the basic procedures to operate and configure a INSYS HSPA small 2.0.

The INSYS HSPA small 2.0 is configured and operated via AT commands. You can enter these commands yourself with the help of a terminal program and the AT command reference.

In general, any terminal program may be used. We recommend the program TeraTerm from T.Teranishi. It is available free in the Internet.

Configuring and operating the INSYS HSPA small 2.0 with a terminal program

How to configure and operate the INSYS HSPA small 2.0 with a terminal program.

⇢ The INSYS HSPA small 2.0 is connected to the PC and switched on.

⇢ A terminal program is installed on the PC.

1. Start your terminal program.

2. Open the serial interface (COM port), to which the driver "Motorola AT COM Port" is connected.

ⓘ You can find out this COM port by expanding the "Ports (COM & LPT)" entry in the Windows Device Manager.

3. Type the character string AT into the terminal program. Complete the entry by pressing the Enter key.

ⓘ Each command input starts with **AT** and is completed with the Enter key.

✓ The INSYS HSPA small 2.0 replies with **OK**.

➢ *If you don't receive the response **OK**, check the connection, the configured COM port, and if the INSYS HSPA small 2.0 receives power.*

4. Configure the INSYS HSPA small 2.0 using AT commands.

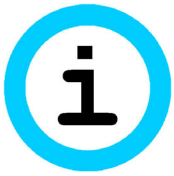
ⓘ Notes to the reference of AT commands can be found in the AT Command Reference section.

11 Functions

11.1 Entering the PIN of the SIM Card

The INSYS HSPA small 2.0 requires a SIM card as well as the associated SIM card PIN to be able to log into a GSM network. The PIN is necessary that the device is able to use the SIM card for logging into the GSM network. If the SIM card requires no PIN, you don't have to enter a PIN in the INSYS HSPA small 2.0 .

Note



Loss of function of the SIM card!

An incorrectly entered PIN can cause that the SIM card will be locked after a wrong code has been entered for three times.

Take care, that the passed SIM PIN corresponds with the SIM card or disable the PIN request of the SIM card. A possibly configured PIN has no influence if the PIN request is disabled.

Configuration with AT commands

In order to **pass the PIN**, use the command Replace **<PIN>** with the PIN of the SIM card.	**AT+CPIN=<PIN>**
In order to check the **status of the PIN request** between device and SIM card, use the command	**AT+CPIN?**
The following responses inform about the status of the PIN request:	
No entry required	**READY**
PIN of the SIM card is missing	**SIM PIN**
PUK entry required (after repeated incorrect entry of the PIN)	**SIM PUK**
SIM card not or incorrectly inserted	**+CME Error: SIM not inserted**

11.2 Insert and Remove SIM Card

A SIM card must be inserted that your INSYS HSPA small 2.0 is able to log into the GSM network and transmit data. Moreover, the INSYS HSPA small 2.0 must know the PIN of the SIM card.

Insert SIM card

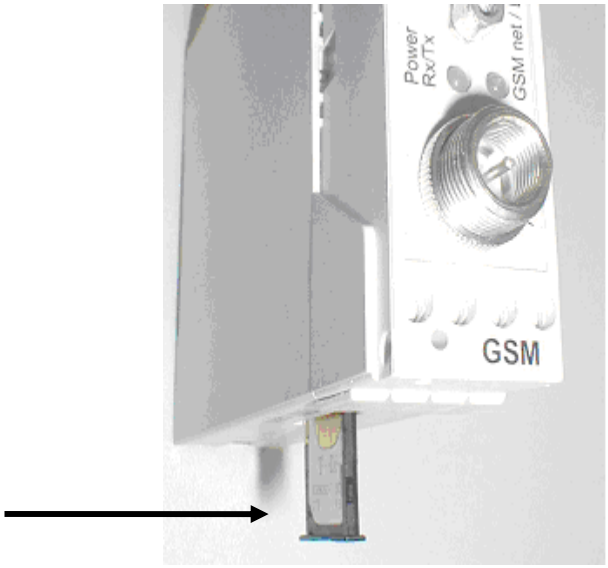
How to insert the SIM card into the INSYS HSPA small 2.0.

⇢ You will need a SIM card.

⇢ You will need a pointed object, e.g. a refill for a ballpoint pen.

1. ***Disable the power supply of the INSYS HSPA small 2.0.***

2. ***Press the eject button of the SIM card holder with the pointed object.***



(similar representation)

✓ The SIM card holder will be ejected.

3. ***Remove the SIM card holder.***

4. ***Insert the SIM card into the SIM card holder.***

5. ***Push the SIM card holder with the inserted SIM card with the contacts of the SIM card facing left into the INSYS HSPA small 2.0.***

✓ The SIM card can now be used by the INSYS HSPA small 2.0.

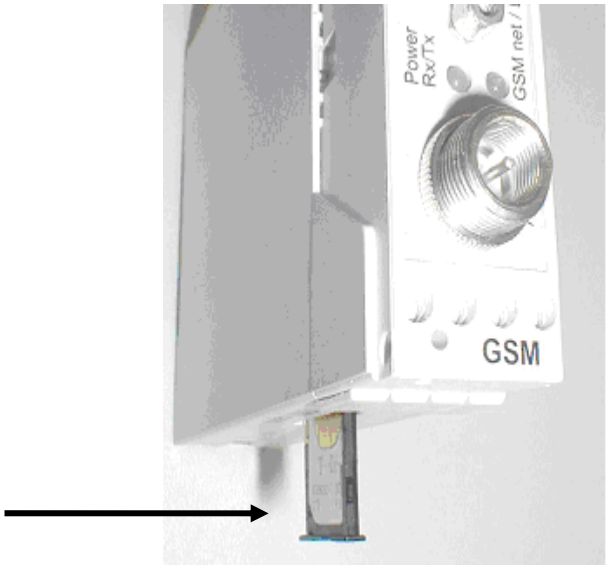
ⓘ Please observe that the correct PIN is passed to the INSYS HSPA small 2.0. A wrong PIN may cause that the SIM card will be locked after switching on the INSYS HSPA small 2.0.

Remove SIM card

How to remove the SIM card from the INSYS HSPA small 2.0.

⇢ You will need a pointed object, e.g. a refill for a ballpoint pen.

1. ***Disable the power supply of the INSYS HSPA small 2.0.***
2. ***Press the eject button of the SIM card holder with the pointed object.***



(similar representation)

✓ The SIM card holder will be ejected.

3. ***Remove the SIM card holder.***
4. ***Remove the SIM card from the SIM card holder.***
5. ***Push the SIM card holder back into the INSYS HSPA small 2.0.***

11.3 Checking the Status of the GSM Login

The INSYS HSPA small 2.0 logs in into the GSM network automatically with each device restart. You can query the login status for test purposes. Then, you can determine, whether the INSYS HSPA small 2.0 is currently logged in or not, a network search is currently performed, a login has been rejected by the GSM network, or the device is logged in into a foreign network via roaming.

Configuration with AT commands

In order to request the **Status of the GSM login**, use the command	**AT+CREG?**
The status is indicated in the response by the second figure following the comma.	
Response example	**+CREG: 0,3**
The following status responses are possible:	
Not logged in, no GSM network search	**0**
Registered with the standard provider	**1**
Not logged in, INSYS HSPA small 2.0 searches for GSM network	**2**
GSM network rejects a login	**3**
Registered with a foreign network via roaming	**5**

11.4 Checking the GSM Signal Quality

You can check the signal field strength at the location of the INSYS HSPA small 2.0. The signal quality has an essential influence on the data transmission speed. If the signal field strength is too low, the transmission speed can drop severely or the connection can be terminated at all.

Configuration with AT commands

In order to **display the signal field strength**, use the command	**AT+CSQ**
The signal quality is indicated in the response by the first figure before the comma.	
Response example	**+CSQ: 13,0**

The following is valid for the signal quality value:

0..10	Poor reception, change location
11..31	Good reception
99	Not detectable

The value following the comma indicates the bit error rate.

11.5 Establishing or Accepting a CSD Data Connection

The INSYS HSPA small 2.0 can call another modem via the GSM network and establish a CSD data connection. After dialling a phone number, the INSYS HSPA small 2.0 synchronises with the called modem and opens a data connection with the transmission speed allowed by the GSM network. This is usually 9600 bit/s.

The speed, which is set at the serial interface of the INSYS HSPA small 2.0 at the time of connection establishment, will not be changed.

All incoming characters are transmitted to the other (called) modem during the active data connection. Therefore, AT commands are not processed during a connection. The INSYS HSPA small 2.0 must be changed to command mode again using an "Escape sequence" that it processes AT commands again during an active connection. Then, the local INSYS HSPA small 2.0 processes the entered characters as AT commands and does not transmit them to the remote terminal. A remote INSYS HSPA small 2.0 can be changed to command mode during an active data connection using the function "Remote configuration".

The INSYS HSPA small 2.0 can accept an incoming connection in the same way. It answers after the configured number of ring tones and opens a connection.

Configuration with AT commands

In order to **establish a data connection** with the INSYS HSPA small 2.0, use the command Replace **<number>** with the phone number of the remote terminal.	**ATD<number>**
If the remote terminal accepts the connection, the INSYS HSPA small 2.0 indicates	**CONNECT**
If the remote terminal is busy, the INSYS HSPA small 2.0 indicates	**BUSY**
If a connection to the remote terminal cannot be established, the INSYS HSPA small 2.0 indicates	**NO CARRIER**
An incoming call is indicated with	**RING**
In order to **change to command mode** during a data connection, use the escape sequence No data must be transmitted for 1 second before and after that the INSYS HSPA small 2.0 changes to command mode.	**+++**
In order to **change from command mode** to normal data transmission again, use the command	**ATO**
In order to **accept an incoming connection**, use the command	**ATA**

In order to configure the **number of ring tones** after which the INSYS HSPA small 2.0 answers and accepts the connection, use the command Replace **<n>** with the number of ring tones (**<n>** = 2...255, **<n>** = 0 deactivates the function).	**ATS0=<n>**
In order to **terminate a connection** and cause the INSYS HSPA small 2.0 to hang up, use the command	**ATH**

11.6 Establishing a PPP Data Connection

Information about establishing a PPP data connection can be found in the add-on manual INSYS GPRS/EDGE Devices as GPRS/EDGE Terminal on the enclosed CD.

11.7 Automatic Call Acceptance

The automatic call acceptance enables the INSYS HSPA small 2.0 to accept each call after the configured number of ring tones.

Configuration with AT commands

In order to **enable the automatic call acceptance**, use the command	**ATS0=1**
In order to **disable the automatic call acceptance**, use the command	**ATS0=0**
In order to **configure the number of ring tones** after which the INSYS HSPA small 2.0 accepts the connection, use the command Replace **<n>** with the number of ring tones (**<n>** = 2...255).	**ATS=<n>**

11.8 Querying a Digital Input

The INSYS HSPA small 2.0 has one digital input (IN 1), whose state can be queried using an AT command.

ⓘ If the digital input is used by the application, the application must initialise the digital input with every start, i.e. set the respective I/O as input.

Configuration with AT commands

In order to **initialise the digital input**, use the command	**AT+MIOD=10,1**
In order to **query the state of the digital input**, use the command	**AT+MIOC?**
The state is indicated in the response by the next to last digit **<x>**	
Response example	**+MIOC: 1,1,1,1,1,0,x,y**
The following states are possible for **<x>**:	
Digital input to GND	**0**
Digital input open	**1**

11.9 Setting a Switch Output

The INSYS HSPA small 2.0 has one switch output (Out 1), that can be controlled accordingly using an AT command. The switch output (Out 1) is designed as change-over contact. The terminals 7 (Out 1) and 8 (Out 1-NC) are connected in idle position (relay not energised) and the terminals 7 (Out 1) and 6 (Out 1-NO) are connected in operated position (relay energised).

ⓘ If the switch output is used by the application, the application must initialise the switch output with every start, i.e. set the respective I/O as output to a defined state.

Configuration with AT commands

In order to **initialise the switch output or set it to idle position**, use the command	**AT+MIOD=1,0,0**
In order to **initialise the switch output or set it to operated position**, use the command	**AT+MIOD=1,0,1**
In order to **query the state of the switch output**, use the command	**AT+MIOC?**
The state is indicated in the response by the last digit **<y>**	
Response example	**+MIOC: 1,1,1,1,1,0,x,y**
The following states are possible for **<y>**:	
Relay of the switch input not energised (idle position)	**0**
Relay of the switch input energised (operated position)	**1**

11.10 Sending an SMS Manually

It is possible to send an SMS manually with the INSYS HSPA small 2.0.

Configuration with AT commands

In order to **configure SMS text mode**, use the command	**AT+CMGF=1**
In order to **configure the number of the short message center**, use the command Replace **<SMSCno>** with the number of the short message center (SMS Center) in international format in quotation marks (e.g. "+49172...").	**AT+CSCA=<"SMSCno">**
In order to **send an SMS message**, enter the destination number using the command Finish the destination number entry in international format in quotation marks with the Enter key **<CR>**.	**AT+CMGS=<"number">**
Following the prompt **>**, enter the **text of the SMS** and finish the entry with **CTRL-Z** (not with the Enter key!).	**>SMS Text**

The INSYS HSPA small 2.0 starts to send the SMS now.

11.11 Using USSD Codes

You can use so-called USSD codes with the INSYS HSPA small 2.0. The USSD codes can be used to configure call forwarding or enable or disable the calling line identification presentation (CLIP) for example. The codes you can use depend on your mobile communication operator / - provider. Refer to your provider for more information about the USSD codes.

Configuration with AT commands

In order to **enter the USSD codes**, use the command Replace **<code>** by an USSD code. Note the semicolon at the end.	**ATD<Code>;**
In order to retrieve the IMEI of the INSYS HSPA small 2.0 for example, use the command	**ATD*#06#;**

11.12 Resetting the Device

The INSYS HSPA small 2.0 can be reset in several ways: by briefly cutting off the supply voltage, by connecting the reset input with GND, or by using an AT command.

Configuration with AT commands

In order to **restart** the INSYS HSPA small 2.0, use the command	**AT+CFUN=1,1**
In order to reset the INSYS HSPA small 2.0 to **default settings**, use the command	**AT&F**

12 AT Command Reference

A detailed reference of the AT commands for the mobile radio engine H24 is available on our download page under the documentation of the respective device (http://www.insys-icom.com/manual/).

13 GSM Service Center Numbers

The following is an overview of the most important mobile phone providers in Germany, Austria and Switzerland. All information is without guarantee of correctness and completeness. The specified numbers may only be valid for certain contracts with the mobile phone provider. More recent information and information about other providers can easily be taken from the internet.

You'll find the current data for your SIM card in your contract documents.

Country	Operator	Network	Short message center number (SMSC)	Fax prefix	Number of the e-mail gateway
D	T-Mobile	T-D1	+49 171 076 0000 +49 171 209 2522	99 (German) 98 (English)	8000
D	Vodafone D2	D2 Vodafone	+49 172 227 0000 +49 172 227 0042 +49 172 227 0111 +49 172 227 0010 +49 172 227 0222 +49 172 227 0333	99	3400
D	E-Plus	E-Plus	+49 177 061 0000 +49 177 060 0000 +49 177 062 0000	1551	767 62 45
D	O2	O2	+49 176 0000 443 +49 176 0000 433	329	6245
D	Mobilcom	D1	+49 171 076 0315	1091	1090
D	Mobilcom	D2	+49 172 227 0880	1091	
D	Mobilcom	E-Plus	+49 177 061 0000	1551	
A	Mobilkom	A1	+43 334 0501 +43 664 0501	-	-
A	max.mobil		+43 676 021	6762	6761
A	One (Connect)		+43 699 000 1999	-	-
CH	Orange	Orange	+41 78 777 7070		
CH	Swisscom	Swiss GSM	+41 79 499 900 0 +41 79 499 812 3		
CH	TDC	sunrise	+41 76 598 0000		

14 APN Access Data

In order to access a GPRS/EDGE/UMTS network, you need a valid GPRS/EDGE/UMTS card contract and the following information from your provider:

- APN (Access Point Name, access address of the provider)
- Information about the assignment of the IP address
- User name and password (if required)

This is an overview about the access data of network providers for German language countries (D, A, CH). All necessary information is available from the customer service center of the provider. Refer to our website and visit the Knowledge Base or access http://www.insys-tec.de/apn for further access data.

Network provider	APN	PPP user name	PPP password
mdex	mdex.ic.t-mobile	Refer to contract data	Refer to contract data
T-Mobile (D1) Germany	internet.t-mobile	td1	td1
Vodafone (D2) Germany	web.vodafone.de	**)	**)
E-Plus Germany	internet.eplus.de	eplus	gprs
O2 Germany	surf.xxl.interkom.de netcompany.interkom.de	*)	*)
T-Mobile Austria	gprsinternet	GPRS	*)
Swisscom Switzerland	gprs.swisscom.ch	gprs	gprs

*) not necessary
**) any password necessary

The IP address assignment is always performed automatically.

15 Network Provider Codes

Codes and names of the network providers (GSM Location Area Identification Number) for the GSM modules in alphabetic order for the command **AT+COPS**.

The following table may be output with the command **AT^SPLM**.

Code	Name
23210	3 AT
50506	3 AUS
45403	3 HK
22299	3 ITA
24002	3 SE
23420	3 UK
41702	94 SYRIA
23201	A1
46668	ACeS
51000	ACeS
51511	ACeS
52020	ACeS
41201	AF AWCC
41220	AF TDCA
60702	AFRICELL
40402	AirTel
40403	AirTel
40410	AirTel
40431	AirTel
40445	AirTel
40449	AirTel
40490	AirTel
40492	AirTel
40493	AirTel
40494	AirTel
40495	AirTel
40496	AirTel
40497	AirTel
40498	AirTel
42001	ALJAWAL
27601	AMC-AL
60301	AMN
34430	APUA-PCS
72234	AR PERSONAL
722310	ARG CTI Movil
62201	CELTEL TCD
64005	CELTEL TZ
46000	China Mobile
46001	China Unicom
61201	CI CORA
310410	Cingular
310150	Cingular
310170	Cingular
73001	CL ENTEL PCS

Code	Name
3E+05	AT&T Wireless
40001	AZE-AZERCELL GSM
20610	B mobistar
21803	BA-ERONET
40002	BAKCELL GSM 2000
20620	BASE
36439	BaTelCell
42601	BATELCO
61604	BBCOM
47003	BD ShebaWorld
25099	BEE LINE
20601	BEL PROXIMUS
61302	BF CELTEL
28405	BG GLOBUL
47002	BGD AKTEL
47001	BGD-GP
21890	BH GSMBIH
43701	BITEL
61603	BJ BENINCELL
73602	BOMOV
34020	BOUYGTEL-C
40421	BPL MOBILE
40427	BPL MOBILE
40443	BPL MOBILE
40446	BPL MOBILE
72405	BRA CL
52811	BRU-DSTCom
40434	BSNL MOBILE
40438	BSNL MOBILE
40451	BSNL MOBILE
40453	BSNL MOBILE
40454	BSNL MOBILE
40455	BSNL MOBILE
40457	BSNL MOBILE
40458	BSNL MOBILE
24414	FI AMT
24409	FI FINNET
24405	FI RADIOLINJA
24491	FI SONERA
24403	FI TELIA
24412	FI2GFI12
302370	Fido
29505	FL1
64702	F-OMT

Code	Name
40459	BSNL MOBILE
40462	BSNL MOBILE
40464	BSNL MOBILE
40466	BSNL MOBILE
40471	BSNL MOBILE
40472	BSNL MOBILE
40473	BSNL MOBILE
40474	BSNL MOBILE
40475	BSNL MOBILE
40476	BSNL MOBILE
40477	BSNL MOBILE
40479	BSNL MOBILE
40480	BSNL MOBILE
40481	BSNL MOBILE
40211	BT B-Mobile
35002	BTC MOBILITY LTD
70267	BTL
65201	BW MASCOM
25701	BY VELCOM
20820	BYTEL
338180	C&W
342600	C&W
346140	C&W
23455	Cable & Wireless
45618	CAMSHIN
63089	CD OASIS
65507	CELL C
310560	Cell One
63004	CELLCO GSM
61701	CELLPLUS-MRU
65010	CELTEL
62901	CELTEL CD
62803	CELTEL GA
63002	CELTEL RC
61901	CELTEL SL
40460	Hutch
40484	HUTCH
40486	HUTCH
45503	Hutchison MAC
22201	I TIM
22288	I WIND
71201	I.C.E.
26003	IDEA
40404	IDEA

Code	Name
73010	CL ENTEL PCS
62910	COG LIBERTIS
732103	COL MOVIL
732101	COMCEL
62501	CPV MOVEL
45400	CSL
36269	CT GSM
36801	CU/C_COM
28001	CY CYTAGSM
310940	DCT
50216	DiGi
70602	DIGICEL
73402	DIGITEL TIM
63801	DJ EVATIS
60302	Djezzy
23802	DK SONOFON
21403	E AMENA
62120	ECONET NG
24801	EE EMT GSM
24802	EE RLT
60201	EGY MobiNiL
61710	EMTEL-MRU
26203	E-Plus
26002	Era
70601	ESV PERSONAL
63601	ETH-MTN
45702	ETLMNW
23002	EUROTEL - CZ
23102	EUROTEL-SK
25028	EXTEL RUS
65102	EZI-CEL
20810	F SFR
46601	FarEasTone
41601	Fastlink
41677	JO MobCom
44010	JP DoCoMo
44020	J-PHONE
23450	JT GSM
28802	KALL
46688	KGT
45602	KHM-Hello GSM
54509	KL-Frigate
476193	KP SUN
45002	KR KTF
45008	KR KTF
41902	KT MTCNet
41903	KT WATANIYA
40102	KZ KCELL
40101	KZ K-MOBILE
27001	L LUXGSM
27077	L TANGO
45701	LAO GSM
45703	LATMOBIL

Code	Name
34001	F-Orange
55001	FSM Telecom
28801	FT-GSM
54720	F-VINI
62802	GAB TELECEL
60701	GAMCEL
28201	GEO-GEOCELL
62002	GH ONEtouch
62001	GH SPACEFON
62003	GH-MOBITEL
26601	GIBTEL GSM
62150	Glo NG
51502	Globe
61102	GN LAGUI
62701	GNQ01
27821	go mobile
20201	GR COSMOTE
20209	GR Q-TELECOM
20210	GR TELESTET
21601	H PANNON GSM
31070	Highland
45410	HK NEW WORLD
45404	HK ORANGE
45412	HK PEOPLES
45416	HK SUNDAY
74401	HPGYSA
21910	HR VIP
21901	HTmobile HR
65401	HURI
40401	Hutch
40405	HUTCH
40411	HUTCH
40413	HUTCH
40415	Hutch
21805	MOBI'S
46693	MobiTai
64002	MOBITEL - TZ
63401	MobiTel SDN
45601	MOBITEL-KHM
22004	MONET
60401	MOR IAM
60400	MOR MEDITEL
21407	MOVISTAR
33403	MOVISTAR
64301	MOZ-mCel
60901	MR MATTEL
64901	MTC NAMIBIA
42602	MTC-VFBH
28401	M-TEL GSM BG
62130	MTN - NG
62401	MTN CAM
65510	MTN-SA
64110	MTN-UGANDA

Code	Name
40407	IDEA
40422	IDEA
40424	IDEA
40478	IDEA
61002	IKATEL ML
42502	IL Cellcom
42501	IL Orange
51021	IM-3
310690	IMMIX
40442	INA AIRCEL
40440	INA AIRTEL
40430	INA HUTCH
40420	INA MaxTouch
40441	INA RPG
51001	IND SATELINDOCEL
51010	IND TELKOMSEL
40412	INDEH
40419	INDEK
40456	INDEU
40470	INDH1
43602	Indigo-T
40468	IN-DOLPHIN
40469	IN-DOLPHIN
70268	INTELCO
43214	IR KISH
43219	IR MTCE
27203	IRL-METEOR
43211	IR-TCI
27401	IS SIMINN
27402	IS TAL
51501	Islacom
310770	IWS
42505	JAWWAL
33805	JM DIGICEL
23830	Orange
37001	orange
65202	Orange
62402	Orange CAM
22803	Orange CH
61203	Orange CI
20801	Orange F
29502	Orange FL
20420	Orange NL
64700	Orange re
23101	Orange SK
52099	Orange Th
25011	ORENSOT
23003	OSKAR
26803	P OPTIMUS
26806	P TMN
71401	PANCW
74402	PGY Porthable
51505	PH Sun Cellular

Code	Name
29577	LI TANGO
62801	LIBERTIS
51008	LIPPO TEL
41371	LK Mobitel
24701	LMT GSM
61801	LoneSTAR
24602	LT BITE GSM
24702	LV TELE2
45501	MAC-CTMGSM
28202	MAGTI-GSM-GEO
61001	MALITEL ML
64111	mango
23458	Manx Pronto
25902	MD MOLDCELL
25901	MD VOXTEL
25002	MegaFon
64602	MG ANTARIS
64601	MG Madacom
61902	MILLICOM SL
29402	MKD COSMOFON
29401	MKD-MOBIMAK
41401	MM 900
42899	MN MobiCom
26213	MobilCom
25019	RUS_Bashcell
25016	RUS16 250 16
24007	S COMVIQ
42101	SabaFon
63902	Safaricom
64202	SAFARIS
25005	SCS RUS
71073	SERCOM
36301	SETAR GSM
63301	SEYCEL
63310	SEZ AIRTEL
64710	SFR REUNION
52503	SGP M1-GSM
29341	SI MOBITEL GSM
29370	SI VEGA 070
29340	SI.MOBIL
25004	SIBCHALLENGE RUS
52501	SingTel
52502	SingTel-G18
51503	SMART
45406	SmarTone
45500	SmarTone
25007	SMARTS
25015	SMARTS
60801	SN ALIZE
60802	SN-SENTEL SG
43601	Somoncom
63701	SOMTELESOM
42102	SPACETEL

Code	Name
25702	MTS BY
25001	MTS-RUS
47201	MV DHIMOBILE
65001	MW CP 900
50219	MY CELCOM
50212	MY Maxis Mobile
24202	N NetCom GSM
24201	N Telenor
25044	NC-GSM
54601	NCL MOBILIS
61402	NE CELTEL
310450	NECCI
62140	NG NITEL
20408	NL KPN
20412	NL Telfort
26207	o2 - DE
27202	O2 - IRL
23410	O2 - UK
27403	Og Vodafone
72431	Oi
42202	OMAN MOBILE
24601	OMNITEL LT
23205	one
23433	Orange
41701	SYRIATEL
46689	T3G
45708	TANGO LAO
62202	TD LIBERTIS
23801	TDC MOBIL
33420	TELCEL
36251	Telcell GSM
29001	TELE Greenland
24603	TELE2
24803	TELE2
64803	TELECEL ZW
61205	TELECEL-CI
35001	TELECOM BDA
29501	telecom FL
73002	TELEFONICA
74602	TeleG
23207	telering
23820	TELIA DK
24001	TELIA S
63782	Telsom Mobile
50501	Telstra
61501	TG-TOGO CELL
52015	TH ACT 1900
52001	TH GSM
52023	TH GSM 1800
52018	TH-DTAC
90105	Thuraya
71610	TIM
72402	TIM

Code	Name
41003	PK-UFONE
26001	Plus GSM
53701	PNGBMobile
74001	PORTA GSM
72235	PORT-HABLE
25092	Primtel
22002	ProMonte
51011	proXL
310500	PSC Wireless
42701	QAT QATARNET
28304	RA 04
28301	RA-ARMGSM
63510	R-CELL
25012	RF Far East
41501	RL Cellis
41503	RL LibanCell
22601	RO CONNEX
22603	RO Cosmorom
22610	RO ORANGE
302720	ROGERS
25017	RUS 17
25010	RUS DTC
25020	RUS ECC
25013	RUS Kuban-GSM
310230	T-Mobile
310240	T-Mobile
310250	T-Mobile
310260	T-Mobile
310270	T-Mobile
310660	T-Mobile
23203	T-Mobile A
23001	T-Mobile CZ
26201	T-Mobile D
20416	T-Mobile NL
23430	T-Mobile UK
23431	T-Mobile UK
23432	T-Mobile UK
50213	TMTOUCH
28603	TR ARIA
28604	TR AYCELL
28602	TR TELSIM
28601	TR TURKCELL
46699	TransAsia
37412	TSTT
60503	TUNISIANA
60502	TUNTEL
46606	TUNTEX
46692	TWN Chunghwa
46697	TWN GSM 1800
352130	TWTCGN
25501	UA UMC
42402	UAE ETISALAT
25505	UA-GT

Code	Name
64201	Spacetel BI
40414	SPICE
40444	SPICE
41302	SRI DIALOG
41303	SRI-CELLTEL
21303	STA-MOBILAND
52505	STARHUB-SGP
62601	STP CSTmovel
22802	Sunrise
65310	Swazi-MTN
24004	SWEDEN
24005	Sweden 3G
22801	SWISS GSM
41709	SYR MOBILE SYR
310320	USA-CellularOne
310910	USAFC
31040	USATX
310530	USA-WVA WIRELSS
36291	UTS
43405	UZB COSCOM GSM
43404	UZB DAEWOO-GSM
43407	UZB-UZD
43402	UZMACOM
64004	VadaCom
65101	VCL COMMS
27404	Viking
73601	VIVA
45201	VN MOBIFONE
45202	VN VINAPHONE
63001	VODACOM CD

Code	Name
72403	TIM
72404	TIM
50217	TIMECel
43603	TJK MLT
43605	TJT - Tajik Tel
61602	TLCL-BEN
51402	TLS-TT
310740	TLXT
31026	T-Mobile
31031	T-Mobile
310160	T-Mobile
310200	T-Mobile
310210	T-Mobile
310220	T-Mobile
64304	VodaCOM-MZ
65501	VodaCom-SA
27602	vodafone AL
50503	VODAFONE AU
26202	Vodafone D2
60202	vodafone EG
21401	vodafone ES
54201	Vodafone FJ
20205	vodafone GR
21670	Vodafone HU
27201	vodafone IE
22210	vodafone IT
27801	vodafone MT
20404	vodafone NL
53001	vodafone NZ
26801	vodafone P

Code	Name
25503	UA-KYIVSTAR
53901	U-CALL
64101	UG CelTel
25502	UKR-WellCOM
72207	UNIFON
63102	UNITEL
25039	Uraltel
310100	US PLATEAU
31080	USA 080
310340	USA 340
310640	USA AE Airadigm
310190	USA Dutch Harbor
310460	USA ONELINK
310790	USA Pinpoint
24008	vodafone SE
23415	vodafone UK
54101	VUT SMILE
73401	VZ INFO
21630	WESTEL
21404	XFERA
310590	XTNDAREA
50502	YES OPTUS
63903	YES!
22001	YU MOBTEL
22003	YUG 03
64003	ZANTEL-TZ
64501	ZM CELTEL
64804	ZW ECONET

16 Maintenance, Repair and Troubleshooting

16.1 Maintenance

The product is maintenance-free and does not require special regular maintenance.

16.2 Troubleshooting

If a failure occurs during the operation of the product, you will find troubleshooting tips in the "Knowledge Base" on our web site (http://www.insys-icom.de/knowledge/). If you need further support, please contact the INSYS icom Support. You can contact our support department via e-mail under support@insys-tec.de and via phone under +49 941 58692-0.

16.3 Repair

Send defect devices with detailed failure description to the source of supply of your device. If you have purchased the device directly from INSYS icom, send the device to: INSYS MICROELECTRONICS GmbH, Waffnergasse 8, 93047 Regensburg.

Caution!

Short circuits and damage due to improper repairs and modifications as well as opening of products.

Fire hazard and damage of the product.

It is not permitted to open the product for repair or modification.

17 Waste Disposal

17.1 Repurchasing of Legacy Systems

According to the new WEEE guidelines, the repurchasing and recycling of legacy systems for our clients is regulated as follows:

Please send those legacy systems to the following address, carriage prepaid:

Frankenberg-Metalle
Gaertnersleite 8
D-96450 Coburg
Germany

This regulation applies to all devices which were delivered after August 13, 2005.

18 Declaration of Conformity

This device complies with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility 2004/108/EC and the Council Directive relating to Low Voltage 2006/95/EC as well as the Council Directive R&TTE 1999/5/EC.

We will gladly send you a copy of the declaration of conformity on request.

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